

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
22 April 2004 (22.04.2004) ✓

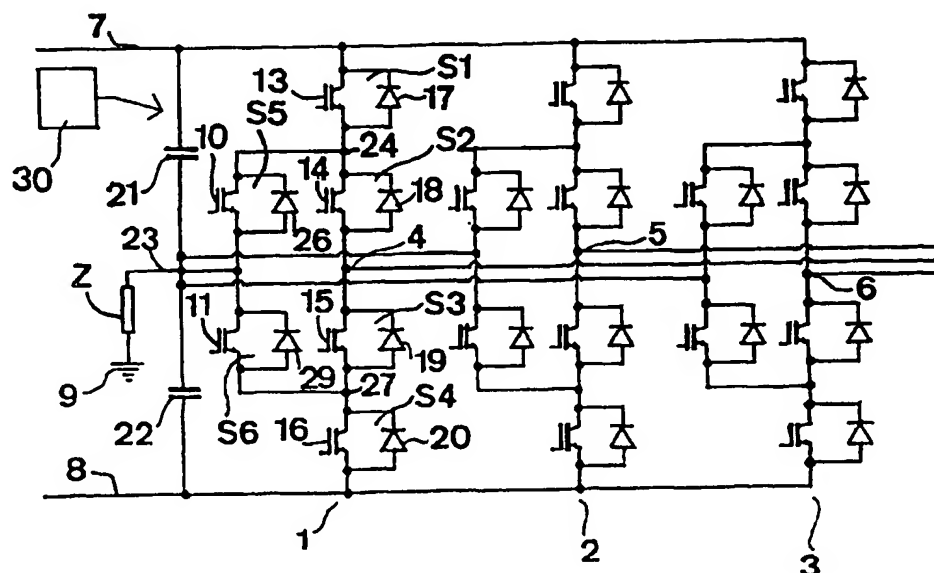
PCT

(10) International Publication Number
WO 2004/034559 A1 ✓

- (51) International Patent Classification⁷: H02M 7/48 (74) Agent: ABB AB; Legal & Compliance/Intellectual Property, S-721 78 Västerås (SE).
- (21) International Application Number: PCT/SE2003/001556 (81) Designated States (*national*): AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE (utility model), EE, EG, ES, FI (utility model), FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK (utility model), SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (22) International Filing Date: 7 October 2003 (07.10.2003)
- (25) Filing Language: Swedish
- (26) Publication Language: English
- (30) Priority Data: 0202974-2 9 October 2002 (09.10.2002) SE
- (71) Applicant (*for all designated States except US*): ABB AB [SE/SE]; S-721 83 Västerås (SE).
- (72) Inventors; and
- (75) Inventors/Applicants (*for US only*): BLIDBERG, Ingemar [SE/SE]; Violstigen 5C, S-771 43 Ludvika (SE). SVENSSON, Kjell [SE/SE]; Vretgatan 2, S-771 41 Ludvika (SE). SILJESTRÖM, Roland [SE/SE]; Orrbacken 3, S-771 50 Grängesberg (SE).
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report

[Continued on next page]

(54) Title: A CONVERTER AND A METHOD FOR CONTROLLING A CONVERTER



(57) Abstract: In a method for control of a converter for conversion of dc voltage into ac voltage or dc voltage and vice versa, in which an output of the converter may alternatively be connected to a positive pole (7), a negative pole (8) or a centre (23) of a dc voltage side of the converter in the form of different so-called main states, there is carried out, when changing between main states via a so-called minor commutation loop, an extra sequence in the form of a delayed turn-on of semiconductor elements (13, 16) in one unit of the converter relative to semiconductor elements (14, 15) in another unit in a pair of units of the converter.



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.